What is claimed is:

1. A method for controlling vibration energy in a structure having a vibrating member using a vibration confinement device, the vibrating member having boundaries and vibrating relative to the boundaries, the method comprising:

selecting a vibration confinement region in the vibrating member relative to the boundaries;

determining an effective torsional stiffness and an effective translational stiffness for the vibration confinement device;

determining an operating position relative to the boundaries for the vibration confinement device on the vibrating member to define a determined position; and

positioning the vibration confinement device at the determined position to substantially confine the vibration energy to the vibration confinement region.

2. The method according to claim 1, wherein the vibration confinement device is a passive vibration confinement device.

3. The method according to claim 1, wherein the vibration confinement device is an active vibration confinement device.

4. The method of claim 1, and further comprising selecting a frequency range over which vibrational energy is confined to the vibration confinement region.

5. The method of claim 1, and further comprising selecting a specific modal behavior of the structure.

6. The method of claim 1, and further comprising adjusting at least one of the translational stiffness, the torsional stiffness and the operating position of the vibration confinement device so as to enhance confinement of vibrational energy to the vibration confinement region.

7. A method of actively controlling vibration energy in a structure having a vibrating member using a vibration confinement device, the vibrating member having boundaries and vibrating relative to the boundaries, the method comprising:

selecting a vibration confinement region in the vibrating member relative to the boundaries;

determining an effective torsional stiffness and an effective translational stiffness for the vibration confinement device;

determining an operating position relative to the boundaries for the vibration confinement device on the vibrating member to define a determined position;

positioning the vibration confinement device at the determined position;

positioning a sensor on the vibrating member to sense vibration of the member and to generate a sensor signal in response to the sensed vibration of the member; and

controlling the vibration confinement device in response to the sensor signal.

8. The method of claim 7, and further comprising generating a vibration control signal in a controller in response to the sensor signal, and transmitting the vibration control signal to the vibration confinement device.

9. The method of claim 8, and further comprising computing a vibration response of the vibrating member from the sensor signal before transmitting the vibration control signal to the vibration confinement device.

10. The method of claim 7, wherein positioning a sensor on the vibrating member further comprises positioning a first sensor on a first side of the vibration confinement device and a second sensor on a second side of the vibration confinement device.

11. The method of claim 7, and further comprising positioning a sensor on the vibration confinement device.

12. The method of claim 7, wherein controlling the vibration confinement device comprises adjusting at least one of the position of the vibration confinement device, the translational stiffness of the vibration confinement device, and the torsional stiffness of the vibration confinement device.

13. The method of claim 7, and further comprising selecting a frequency range over which vibrational energy is confined to the vibration confinement region.

14. The method of claim 7, and further comprising selecting a specific modal behavior of the structure.

15. A method for controlling vibration energy in a vibrating member, the method comprising:

passively applying effective first translational and first torsional forces to the vibrating member at a preselected location of the vibrating member;

sensing vibrations in the vibrating member; and

actively applying effective second translational and second torsional forces to the vibrating member in response to the sensed vibrations;

wherein passively applying the effective first translational and first torsional forces and actively applying the effective second translational and second torsional forces to the vibrating member act to substantially confine the vibration energy to a preselected region of the vibrating member.

16. The method of claim 15, wherein actively applying effective second translational and second torsional forces comprises applying the effective second translational and second torsional forces at the preselected location of the vibrating member.

17. The method of claim 15, wherein actively applying effective second translational and second torsional forces further comprises adjusting at least one of a location on the vibrating member at which the effective second translational and second torsional forces are actively applied, a magnitude of the second translational force, and a magnitude of the second torsional force.

18. The method of claim 17, wherein actively applying effective second translational and second torsional forces further comprises:

computing a vibration response of the vibrating member from the sensed vibrations; and

adjusting the at least one of the location on the vibrating member at which the effective second translational and second torsional forces are actively applied, the magnitude of the second translational force, and the magnitude of the second torsional force according to the computed vibration response of the vibrating member.

19. The method of claim 15, wherein actively applying effective second translational and second torsional forces to the vibrating member further comprise actively applying the effective second translational and second torsional forces to the vibrating member when the sensed vibrations exceed a predetermined vibration energy.

20. The method of claim 15, wherein sensing vibrations in the vibrating member further comprises sensing the vibrations on either side of the preselected location of the vibrating member.